SITUATION REPORT NO. 13
INCIDENT NO. 97-001
DATE: December 22, 1997 TIME: 2:00 p.m.

TO: Governor Edward T. Schafer
State Capitol
Bismarck, ND 58505

1. NATURE OF DISASTER: Flood - Devils Lake.

2. DEATH AND INJURIES: No change from previous reports.

3. DAMAGE: Devils Lake waters have frozen around 1,442.6 feet, a level that the lake has remained throughout late summer and fall, the N.D. State Water Commission has reported. The lake has been following a pattern of steep increases in the spring, peaking in July, falling slightly in the fall and rising through the winter. Last year, the lake freeze-up occurred near 1,438 feet. By summer, the lake had risen nearly five feet to a record high of 1,442.97 feet on July 26 and 27.

4. RESOURCES COMMITTED:

LOCAL: No change from previous reports.

STATE: No change from previous reports.

FEDERAL: No change from previous reports.

5. VOLUNTEER ACTIONS: No change from previous reports.

6. MAJOR ACTIONS: A State Flood Coordination Center meeting was held in Devils Lake on November 18, 1997. The meeting focused on flood plans for potential lake level increases for Devils Lake in 1998. In addition to reporting on current flood response activities, participants discussed potential damages that could occur at the following elevations: 1,444 feet; 1,445 feet; 1,446 feet; 1,447 feet; and, 1,448 feet. Their reports are as follows:

Indian Health Service (IHS)

1998 Flood Planning:

- The berm elevation of the St. Michael's lagoon is 1,451 feet. At an elevation of 1,446 feet, IHS will begin planning to relocate the facility.

- Two homes near the St. Michael's community have been relocated. There is one manufactured home that would need to be relocated if the lake continues to rise.

- One of the lift stations in the Ft. Totten community is the most flood prone at a rim elevation of 1,451.4 feet. The manhole rim elevation of the lowest manhole next to the lift station is 1,448.8 feet.

- IHS has received emergency funds in the amount of $245,000. The funds will be used to connect flood-relocated homes to the rural water system or to construct wells and install septic tanks and drainfields. The project funds will be used to purchase a sewer jetter to clear the sewer system of salt and debris from surface water, which could gain access to the sewer systems. Improvements to access to the lagoons and lift stations will also be covered by the project.

U.S. Army Corps of Engineers (COE), St. Paul District

Current Projects:

- The contractor is placing dirt along several locations of the lake level protection system for the city of Devils Lake. The contractor is working in short segments at a time, clearing frozen topsoil every 200 feet and then placing unfrozen fill on the area to bring it to grade.

- Earthwork and concrete work is nearing completion at the Creel Bay pump station and adjacent area.

- Architectural drawings for Creel Bay levee at the Devils Lake Municipal Airport have been given to the contractor.

- On the Creel Township Levee, the work on the first segment, from the existing Creel Bay levee working west, is within 100 feet of completion. This segment should be completed this fall. Work on the second segment near the northwest corner of the new alignment has started with about 300 to 400 feet of this segment in place. Work on the remaining portions of the Creel Township levee was scheduled to begin.

- The cofferdam, temporary diversion channel, pre-loading and wick drain work at the levee crossing of the East Ditch is proceeding. This work is very critical to timely completion of the East Ditch pump station. A subcontractor plans to start installation of the wick by November 19. Based on the present status, it is highly probable that this pre-load and wick drain work will be completed this fall. The earthwork on the East Ditch levee has started.

- Levee work at N.D. Highways 20 and 57 is now up to grade (1,450 feet) with the final quantities of rip-rap being placed.

N.D. Department of Health

1998 Flood Planning:

- Staff for the Division of Water Quality plan to continue monitoring the Devils Lake chain of lakes. The staff monitors 10 sites on the lakes, taking samples six times a year. The last sampling was taken on October 6, 7, and 8. The monitoring will resume in later winter, possibly March 1998. The Department of Health is actively participating in the scoping process for gathering the data for environmental impact study.

- The Water Quality Monitoring Program for 1998 is being designed. The plan will have some flexibility in the event more specific data is required.

Disaster Outreach Team, Lake Region Human Service Center

Current Projects:

- The Disaster Outreach Team is located out of the Lake Region Human Service Center in Devils Lake. The team serves as an information and referral source for flood victims in a six-county region: Ramsey; Benson; Eddy; Towner; Rolette; and, Cavalier Counties.

N.D. Department of Transportation (DOT)

Current Projects:

- The arrival of sub-freezing temperatures has closed construction on most of the grade raise

projects. The following grade will be completed in the spring of 1998:

N.D. Highway 20 at the Narrows:
Fully up to grade and all of the gravel has been placed. Cold weather prevented placing the asphalt prime coat, so this stretch will have a gravel surface for the winter. Next spring, the existing gravel will be re-laid and the surface primed.

N.D. Highway 20 at Camp Grafton:
Up to grade, but not all of the gravel placed yet. A gravel surface should be added during winter. Next spring, more gravel will be hauled to the site. The gravel will be re-laid, and the surface will be primed.

N.D. Highway 20 near Acorn Ridge:
Up to grade and most of the gravel placed. This will have a gravel surface during winter. Next spring, a small amount of gravel will be added, the gravel re-laid, and the surface primed.

U.S. Highway 281 South of Jct. N.D. Highway 19:
Complete except for asphalt prime coat. This will have a gravel surface during winter. The gravel will be re-laid and primed next spring.

N.D. Highway 19 East of Jct. U.S. Highway 281:
Same as above.

N.D. Highway 57 Fort Totten Bay and Sully's Hill area:
Some filling, rip-rap and gravel work is continuing in this area, but cold weather is likely to shut this project down soon. Although work on this project is not finished, contractor should have the site in reasonably good condition for the winter. Driving surface will be gravel.

- All other grade raises started this year have been completed and have asphalt primed surfaces.

- Negotiations are still continuing with the prime contractor on how the old bridge on N.D. Highway 19 at Six Mile Bay can be removed. It is still intended that the old structure be removed prior to the 1998 spring runoff.

- Design work continues on the bridge for the N.D. Highway 57 Narrows crossing. A bid letting is scheduled for April 1998.

- The department has identified several other possible problem sites where work may be necessary next year if the lake rises significantly again next spring. The intent is to have plans ready for a bid letting to expedite possible repair work.

- Following is information regarding road elevations for various lake elevations 1,443 to 1,448 feet:

  The finished centerline elevation of all 1997 grade raises on N.D. Highways 19, 20, & 57 is 1,448.5 feet.
  Elevation of U.S. Highway 281, north and south of Minnewaukan, is 1,451 feet.
  Elevation of N.D. Highway 19, at Six Mile Bay, is approximately 1,447.5 feet and the elevation at Mauvais Coulee is approximately 1446.8 feet (maximum elevation limited by bridge elevations).
  Elevation of U.S. Highway 2, Mauvais Coulee at Churchs Ferry, is approximately 1,450.0 feet.
  Elevation of U.S. Highway 2, at Channel "A", is 1,452.8 feet.
  Elevation of U.S. Highway 2, at milepoint 275.85, is 1,452.7 feet.
  Elevation of U.S. Highway 281, at South Mauvais Coulee crossing, is 1,445.9 feet.
  Elevation of U.S. Highway 281, at North Mauvais Coulee crossing, is 1,449.4 feet.
  Elevation of N.D. Highway 1, at Stump Lake, is 1,410 feet.

1998 Flood Planning

1,443 feet

There should be some erosion of highway shoulders and deposits of debris on highways during high winds. All state highways remain open. During periods of flow on Mauvais Coulee, there could be flooding problems on U.S. Highway 2 at Churchs Ferry due to backwater effects and flow profile.

1,444 feet

Same as above, although wave action would be more pronounced and there is a higher probability of erosion damage and debris deposits. Also, there is more likelihood of flooding at Churchs Ferry during flows on the coulee. U.S. Highway 2 probably would be under water if flows on Mauvais Coulee approached 1997 levels.

1,445 feet

Same as above, but there very likely would be erosion damage to highway shoulders and considerable debris deposition. Rip-rap would have to be raised on all crossings. Some highways may have to be closed temporarily, depending upon wind direction and speed.

1,446 feet

Highways would be closed more frequently on windy days, especially N.D. Highway 19 at Mauvais Coulee and Six Mile Bay. At some point here, water would begin flowing into Stump Lake, the lake would rise about 37 inches, and N.D. Highway 1 would be under water.

1,447 feet

N.D. Highway 1 at Stump Lake would close. N.D. Highway 19 at Mauvais Coulee and Six Mile Bay would close except for emergency travel. Other highways would close more frequently on windy days.

1,448 feet

Most state highways would close except for emergency travel. U.S. Highway 281 would remain open except, perhaps, on windy days.

N.D. National Guard

Current Projects:

- The lagoons at Camp Grafton are currently built to 1,446 feet. A project was completed to rip-rap the raised portion. This work will give Camp Grafton time to change over its sewer system to pump directly into Ramsey Rural Utility Service. Once the switchover has been completed, the lagoons will be abandoned. Should problems occur and the lagoons are needed next spring, more flood protection may be required.

- The wood disposal site and access road were flooded this summer. A replacement site is currently being used. The wood disposal site was cleaned prior its inundation.

- The threat of a breach in N.D. Highways 57/20 to the north of the main gate is still a concern.

- The Rappel Tower, Leadership Reaction Course, the Bridge Training Area, the Boxcar Storage Site, the Ammunition Supply Point and numerous training areas are threatened at this time if N.D. Highway 20 would fail or be overtopped.

- A pipe crossing for pumping down water near the camp's baffle range has been installed across N.D. Highway 20. A pump will be set up in the spring to handle snowmelt runoff. This pipe is set at approximately 1,447 feet on the lakeside.

- N.D. Highway 20, near the entrance of Camp Gilbert C. Grafton, has been reopened to traffic. During its closure this summer, traffic to the camp had been routed through residential areas. The reopening of the highway will allow the National Guard to reroute traffic to N.D. Highway 20 and to the main gate.

1998 Flood Planning:
With continued rising lake levels, other facilities are threatened. These are as follows:

1,444 feet
The lagoon would be in serious trouble (if still in use); wave action is a constant problem; Building 8080 (garage) at the engineer site would be flooded; Building 0355 (garage) near Residence 0350 would be flooded as would an access road to old Officers Club, known as "Lake Drive." Certain portions of "Fraine Road" would be overtopped (near engineer site).

1,446 feet
The lagoon would be overtopped, and a storm sewer line outlet on 3rd Street would be flooded.

1,448 feet
Building 8050 (garage) and Building 8055 (latrine) at rock jetty would be flooded.

N.D. State Parks and Recreation Department

Current Projects:
Grahams Island State Park opened for public use the week of November 16-22 after its access road had been elevated above flood waters.

1998 Flood Planning:
1,444 feet: Shelvers Grove
A lake elevation of 1,444 feet would require relocation of the maintenance facility. One hundred feet of the campground entrance road would have to be raised and protected in one area. Access to the day use area and picnic shelter would be lost and would require relocation of the access road. Any additional increase in the lake levels to 1,448 feet would not have any impact on the remaining park facilities. All of the remaining park facilities are located between the elevations of 1,448.6 to 1,450 feet.

1,444 feet: Grahams Island
This elevation would require relocation of one comfort station, one electrical transformer and several electric panels. Five modern campsites would be lost.

1,445 to 1,446 feet: Grahams Island
Damages to existing facilities in this elevation range would not be extensive. Several campsites would be flooded in the west end of the campground.

1,447 feet: Grahams Island
This elevation would result in the loss of the east end of the campground and the loss of 11 modern campsites. Three vault toilets would be removed from the campground area.

1,448 feet: Grahams Island
Two park residences would need to be relocated. The entire campground would be flooded.

1,448 feet: Black Tiger Bay
The elevation of the boat ramp is 1,448 feet. If Devils Lake continues to rise, we would need to place rip-rap to protect the boat ramp from wave damage. All of the park property in this area would be lost if the lake rises above 1,448 feet.

N.D. State Water Commission (SWC)

1998 Flooding Planning:

- The State Water Commission has committed $1.15 million to extend its Available Storage Acreage Program (ASAP) through 1998 for all prior participants with viable storage sites. Money available due to prior participants not renewing their sites will be used to pursue new water storage sites. The $1.15 million should be sufficient funding to store approximately 22,000 acre-feet of water, the amount stored in 1997.

- The Devils Lake Outlet Advisory Committee, formed by the 1997 N.D. Legislature, has started the process of developing recommendations for an operating plan for the emergency outlet. The nine-member board is chaired by the State Engineer and includes members representing the Devils Lake Basin and downstream interests. The committee expects to have public meetings to gather input for a lake level operating range and outlet operations.

N.D. State Water Commission, State Flood Insurance Coordinator

Current Projects:

Preliminary reports indicate the National Flood Insurance Program (NFIP) expended at least $17 million for approximately 200 claims filed under a waiver of NFIP requirements during 1996 and 1997. Among other criteria, the most recent waiver suspended the 90-day waiting period applicable to continuous lake flood claims and the universal claim requirement that surface water must touch part of the building. Owners of buildings at 1,444 feet and under were eligible for submitting claims under the 1997 waiver. Eligible policyholders were required to purchase flood insurance before January 18, 1997.

1998 Flood Planning:

- FEMA's Region VIII Office in Denver has purchased Global Positioning Equipment that will be used to help lakeside communities determine the number of structures at risk of flooding with a continued lake rise. Structures at risk of flooding will be determined in one-foot increments, ranging from 1,444 to 1,448 feet.

- The COE, under contract by FEMA, is nearing completion of the technical work required for the development of the Flood Insurance Rate Map for the Devils Lake area. The 100-year base flood elevation has been established at 1,445.3 feet and the 500-year flood elevation at 1,448.5 feet. FEMA will add up to five feet for wave runup on those elevations.

- Community leaders for the cities of Minnewaukan and Churchs Ferry are requesting accelerated conversion to the regular phase (permanent) of the NFIP. Higher flood insurance coverage amounts accompany this conversion. The city of Minnewaukan recently formed a Flood Committee to examine potential flood problems confronting the city. Officials there are concerned that a coulee on the west edge of the city may impact north side homes. Churchs Ferry is also reviewing flood protection options should Devils Lake lake level continue to grow.

North Central Planning Council (NCPC)

1998 Flood Planning:

North Central Planning Council continues to accept and prioritize applications and seek funding for the most urgent projects. The following projects are just a few that are being reviewed at this time and are not necessarily listed in any prioritized order:

- Installation of emergency water and sewer services for Mercy Hospital;
- Repair of Devils Lake Storm Sewer and streets;
- Continue to work with the Office of Intergovernmental Assistance on the funding of the Devils Lake levee raise as well as 1998's Community Development Block Grant (CDBG) allocation for this region;
- NCPC is also aware of the flood protection needs of the cities of Churchs Ferry and

Minnewaukan and are just in the preliminary stages of gathering information at this time;
- City of Crary's connection to the Ramsey County Rural Utility System.

Lake Region District Health Unit

1998 Flood Planning:

- Owners of homes and garages that are inundated with Devils Lake flood waters plan to wait until January and February to move their structures. By then, the lake's ice cover should be thick enough to support the weight of these structures.

- Lake Region District Health is working with Mercy Hospital in Devils Lake to obtain a 50,000-gallon sewage holding tank in the event the city should flood.

Benson County Emergency Management/Highway Department

1998 Flood Planning:

1,444 feet

- A Federal Aid System (FAS) road leading to U.S. Highway 281 and the Mauvais Coulee bridge would be in danger of inundation.

- The Woods-Rutten Road would also be in jeopardy with less than two feet of freeboard.

1,445 feet

- The Dressen Bridge on a township road over the Mauvais Coulee would be inundated.
- The Woods-Rutten Road would also be inundated.

1,446 feet

- The Normania School Bridge and a main township road would be inundated.

1,447 feet

- The Straabe Bridge would be lost.

- Minnewaukan School would lose access to its football and baseball facility

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- The Benson County Fair Buildings would also be affected.

- Approximately $250,000 would be lost for each bridge that becomes inundated. Additional stress would be placed on county and township roads because there would only be three roads where U.S. Highway 281 would be accessed.

1,448 feet

- The only access road to Grahams Island State Park would have two feet of freeboard. The road recently was elevated to 1,450 feet.

Benson County Tax Equalization Office

1998 Flood Planning:

Benson County True and Full Value of taxable land lost as of June 1, 1997 was approximately $3,000,000. Estimated loss of agricultural land in 1998 is $1,300,000. Properties and acreage that will be lost at various lake levels is as follows:

- **1,444-1,445 feet**

Eastview Estates	3 properties
Buckhorn Ridge	6 properties
Mission Township	7 properties
Townships	6,250 acres

- **1,445-1,446 feet**
  Borstad's Estates 2 properties
  Black Tiger Bay 5 properties

- **1,446-1,448 feet**
  Diamond Beach 8 properties
  Black Tiger Bay 6 properties
  Horseshoe Bend 1 property
  Townships 1,800 acres

City of Devils Lake

Current Projects:

- The SWC has submitted a draft report summarizing the types and readings for the monitoring wells located in and around the city. Preliminary indications show the monitoring well readings (ground water levels) have decreased in most areas. City personnel have taken over the responsibility of taking the readings of the wells. It has yet to be determined if ground water levels in and around the city are directly linked to the level of the lake.

1998 Flood Planning:

- The Corps of Engineers is currently working on a protection level of 1,450 feet to be completed before the end of the construction season. This protection level should be sufficient for next spring.

- COE personnel will determine what the level of the next levee raise should be. Construction of the additional levee raise will begin in the 1998 construction season.

City of Minnewaukan Flood Committee

Current Projects:

- The SWC conducted a survey of the problem areas around the City of Minnewaukan. The elevations of the city are being prepared and mapped.

- The flood committee went on record of supporting the National Flood Insurance Program (NFIP) for the city. The city is waiting on a new zoning category, as it is presently in the Emergency Zone. Sand and sandbags are being readied for spring protection of manholes in the lower parts of the city.

- COE engineers are conducting a study on the coulee north of the city. This should be completed early next year.

1998 Flood Planning:

A brief description of potential damages to Minnewaukan are as follows:

1,444 and 1,445 feet

The lake would be approaching the city on the north and west side. Cutouts in the banks on the east and north would be monitored.

1,446 and 1,447 feet

The culvert on U.S. Highway 281 and west would be full of water. Water would be at the east end of the school football field and would cover most of the park. Water would be on the northwest edge of town at a level of 1 to 2 feet. Any runoff would spread the water south into other parts of the city. Basements of homes on the north and west side of the city would be at or below the level of the lake.

1,448 feet

Minnewaukan would be surrounded by water because spring runoff could not be drained. Wave

action from the lake would impact the city.

Ramsey County Highway Department

1998 Flood Planning:

Many county and township roads may be affected by spring runoff into the lake. Identified potential losses are:

1,446 feet

Ramsey County Road 4, where Devils Lake crosses over into Stump Lake, is at elevation 1,446 feet MSL. To raise the road to elevation 1,460 feet MSL would require raising approximately 3,000 feet of road.

1,448 feet

The county road east of Churches Ferry at elevation 1,448 feet MSL will be affected by spring runoff. Last year it was inundated for a few weeks.

Ramsey County Rural Utility System (RCRU)

1998 Flood Planning:

1,443 to 1,448 feet

- RCRU would lose eight sewer accounts and three lift stations at these elevations.
- Shelvers Grove would be the only water service account affected by the lake level increases.

- Because of dikes and road raises, the following areas would be saved: Piper-Ford Subdivision; Acorn Ridge area; parts of Frison Addition; Harveland-Peterson Subdivision; Pleasant Meadows; parts of Lakewood; Sunset Acres area; and part of Eagle Bend. Service to areas in Lakewood and Foughty Subdivision will be relocated this year.

Ramsey County Emergency Management

1998 Flood Planning:

- A total of 150 structures at elevations of 1,444 feet or below have been removed from the Devils Lake lakeside. Ramsey County officials have determined that 84 lakeside structures, valued at $5.6 million, are located between 1,445 to 1,449 feet.

- Information that NFIP spent at least $17 million for approximately 200 claims filed during 1996 and 1997 will help with application for a NFIP waiver for 1998.

Western Area Power Administration (WAPA)

1998 Flood Planning:

- WAPA has three 115,000 volt transmission lines that are, or have the potential to be, impacted by the rising waters of Devils Lake at seven separate sites. The transmission line lake crossings at two locations were rebuilt in 1984 and 1985 to applicable National Electrical Safety Code (NESC) standards based on a high water level of 1,440 feet MSL. All concrete footings were poured to an elevation of 1,445 feet MSL and designed to withstand the forces of three-foot thick ice. Lake levels between 1,440 feet MS and 1,445 feet will have minimal impact on the footings but will reduce the vertical clearance over the lake.

- WAPA is currently reviewing two questions associated with both crossings: What water elevation does the existing vertical clearance comply with the NESC; and, above 1,445 feet, what provisions will be necessary to protect the steel towers from ice. If the review determines that structure modifications are necessary, some or all of the work may be done “on the ice” this winter.

- Water is currently inundating one or more structures at four different sites. Modifications will be

made to the transmission lines at those sites during the summer of 1998. Those changes will maintain the integrity of WAPA's transmission system until the water level reaches approximately 1,446.5 to1,447 feet MSL. At that elevation, WAPA will need to make additional transmission line modification to three sites.

- In summary, WAPA will be making necessary modifications to structures that are in the lake this winter. Next summer, the utility will be making modifications to structures at four sites (assuming the water level does not reach 1,446.5-1,447 feet MSL). If it becomes apparent that the water level will reach 1,446.5 to 1,447 feet MSL this spring, then WAPA will do additional modifications to four sites.

North Dakota Telephone Company

1998 Flood Planning:
1,443 to 1,448 feet

- The North Dakota Telephone Company (NDTC) has budgeted $40,000 for minor cable repairs, which will not include the cost of relocation for Eagle Bend Estates area properties. The company would have lost about $300,000 if plans for the lake level protection system for the city of Devils Lake had not included the Eagle Bend area.

- NDTC has miles of telephone cables under water. If cables were to break down and replacement was required, NDTC would spend thousands of dollars to replace and route facilities in Ramsey, Benson, Nelson and Towner Counties.

United Power Association

1998 Flood Planning:

- United Power Association (UPA) plans to mitigate against ice damage to its Devils Lake to Voltaire 230kV transmission line this spring. UPA plans to add ice protection and rock to structures within the Minnewaukan Flats area. Such efforts would be based on a lake elevation of 1,443 feet with five feet of freeboard. UPA estimates the project to cost $385,648.12.

- The following is the potential range of cost exposure to UPA for each additional foot of lake elevation:

Lake Elevation	Cost Exposure
1,443 feet	$385,700 (Funds currently committed in 1998)
1,444 feet	$482,00 to $579,000
1,445 feet	$602,700 to $867,800
1,446 feet	$753,300 to $1,301,700
1,447 feet	$941,600 to $1,952,600
1,448 feet	$1,177,00 to $2,928,900

- Higher lake elevations may also affect proper clearance to the wires as recommended by the National Electrical Safety Code (NESC).

- In the Creel Bay area, if the lake continues to rise beyond 1,442 feet, the recommended NESC conditions would not be met. Solutions include elevating existing power structures to provide adequate elevations or installing barriers to prevent sailors from entering the transmission line area.

- Additional grade raises on N.D. Highway 19 and U.S. Highway 281 would require an increase in the transmission line clearance over these roadways.

- The impact to UPA's 230kV transmission line would be severe and may degrade the reliability to the city of Devils Lake and surrounding area.

Northern Plains Electric Cooperative

1998 Flood Planning:

- If the water level at Devils Lake increases from 1,443 feet to 1,448 feet, the impact on Northern Plains Electric Cooperative would be significant.

- The following problems may develop as the lake rises from 1,443 feet to 1,448 feet:

Single-Phase Overhead Lines:
Between 1,443 feet and 1,448 feet, Northern Plains would have over 80 miles of single-phase overhead line either in water or the reliability of the line seriously compromised by rising water. This brings the total to approximately 105 miles, since the lake was at 1,435 feet. In some cases, the source for the line may be in water; in other cases, the line would be virtually impossible to maintain, either because the roads are under water or the line is wet and cannot support maintenance vehicles.

Three-Phase Overhead Lines:
At 1,445 feet, the Cooperative would have five miles of three-phase overhead line located in water. The entire area is extremely flat and relocating this line will be difficult. These lines are substation feeders and provide service to over 65 customers. If this line goes down because of water or ice, it would be difficult to provide a reliable source of power to these customers.

Single-Phase Underground Lines:
From 1,443 feet to 1,448 feet, an additional 1.5 miles of single-phase underground cable would be in water. Having the cable itself located under water does not create a crisis as long as the cable doesn't fail. It is, however, important to the Cooperative that the sectionalizing cabinets, pad-mounted transformers, and risers remain above water and accessible. At 1,448 feet, the Cooperative would have a total of 10 miles of single-phase underground line under water as a result of Devils Lake flooding.

Three-Phase Underground Lines:
As the lake rises from 1,443 feet to 1,448 feet, the Cooperative will have four miles of three-phase underground line under water. The Cooperative considers these particular lines to be major feeders, and if they fail, it will inconvenience a significant number of customers. As is the case with all underground lines, having it under water does not necessarily create a crisis as long as the cable doesn't fail. Again, it is important that the sectionalizing cabinets, switches, transformers, and cable risers remain above water and accessible.

Sectionalizing Cabinets and Transformers:
The Cooperative expects to have to relocate, abandon, or splice through seven sectionalizing cabinets and eight pad-mount transformers as the lake level rises from 1,443 feet to 1,448 feet.

Otter Tail Power Company

1998 Flood Planning:

This report summarizes the potential effects that a Spring 1998 Flood would have on Otter Tail Power Company at elevation levels of 1,443 to 1,448 feet. These projects add up to $3,450,000. They would be completed in 1998 or 1999. Estimated costs are:

1,443 feet

- The 41.6kV line from the Narrows to the Casino will be de-energized, and the wire and insulators will be removed, while the concrete poles will stay in the lake. Costs are $25,000. Also, the loss of the line leaves both sides of the lake without another source of power.

- The 41.6kV line with 12.5kV underbuild from the Concrete Block Substation by Mission Bay Market to Ft. Totten would need to be relocated, costing $1,500,000.
- The Concrete Block Substation would have to be removed and relocated east of Four Corners

for a cost of $150,000.

- The 41.6kV line between Lakewood Substation and Camp Grafton entrance needs poles raised for line clearance over N.D. Highways 20 and 57. Costs would be $5,000.

1,444 feet

- A new underground primary line would be placed along Highway 57 between Mission Bay Market and our last customer, going toward Ft. Totten. Costs are $150,000.

- The Lakewood Substation would be removed. Costs are $20,000.

- A new substation would be built inside of the existing Devils Lake SW Substation to serve the Lakewood, Acorn Ridge, and Camp Grafton customers. The cost would be $100,000.

1,445 feet

- The utility would relocate the main feeder to Camp Grafton. Costs are $90,000.

1,446 feet

- The main feeder for Lakewood customers would be relocated. Costs are $180,000.

- The utility would replace all of our primary lines in the Golf Course and Eagle Bend area that the lake has destroyed. New wire and junction boxes would be needed. Costs are $180,000.

- Otter Tail will relocate our 41.6kV line that runs south of Minnewaukan in the lake along U.S. Highway 281. Costs are $600,000.

1,447 feet

- The utility would relocate its 41.6kV line that runs south of Devils Lake along N.D. Highways 20 and 57. This section is from Devils Lake South West Substation to the Narrows. Costs are $300,000.

1,448 feet

- The utility would relocate our 41.6kV line in the Churchs Ferry area as the Mauvais Coulee backs up and spreads out. Costs are $150,000.

7. ASSISTANCE NEEDED: No change from previous reports.

8. OUTSIDE HELP ON SCENE: No change from previous reports

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9. OTHER INFORMATION: Participants at the State Flood Coordination Center meeting agreed to meet in February after the National Weather Service issues its first "Spring Snowmelt Flood Outlook." North Dakota Emergency Management will send meeting notices listing the time and date of the next meeting.

Situation Reports published by the N.D. Division of Emergency Management are posted on the Division's Internet home page. The address is: http://www.state.nd.us/dem.

The North Dakota State Water Commission provides current information about Devils Lake flooding on its home page. The address is: http://water.swc.state.nd.us

Douglas C. Friez
State Director